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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/801,095

03/15/2004

Dieter Meller

LIP 039

9266

32047

7590

06/21/2006

GROSSMAN, TUCKER, PERREAULT & PFLEGER, PLLC
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MANCHESTER, NH 03101

EXAMINER

LEE, GILBERT Y

ART UNIT

PAPER NUMBER

3673

DATE MAILED: 06/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/801,095	MELLER ET AL.	
	Examiner	Art Unit	
	Gilbert Y. Lee	3673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>8/19/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because the abstract exceeds the maximum of 150 words. Correction is required. See MPEP § 608.01(b).

2. The disclosure is objected to because of the following informalities: the specification is missing section headings.

Appropriate correction is required.

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

4. Claims 1-22 are objected to because of the following informalities: all independent claims should start with "A" and all dependent claims should start with "The". Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 1 recites the broad recitation "a sealing ring for sealing two components", and the claim also recites "particularly as a rotary shaft or piston ring" which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 4, 5, 7, 11-19, 23, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Reiners (US Patent No. 3,104,594).

Regarding claim 1, the Reiners reference discloses a sealing ring (27) for sealing two components (e.g. 33 and 22) with a sealing surface (e.g. 28 and 36), the sealing ring displaying a pressurizing surface (31) to be pressurized by fluid (Col. 3, lines 38-41), a supporting surface (e.g. 32) to the side of the sealing surface (Figs. 2-4) for positioning against a groove flank (e.g. 26) characterized in that the pressurizing surface and the supporting surface enclose an angle of less than 90 degrees towards it (Figs. 2-5), and that the sealing ring is capable of radial expansion towards a radially external sealing surface (Col. 2, Lines 68-69).

Regarding claim 2, the Reiners reference discloses the pressurizing surface (31) and the supporting surface (32) forming lateral surfaces of a truncated cone (Figs. 2-5).

Regarding claim 4, the Reiners reference discloses the area of the pressurizing surface and the supporting surface with the form of a truncated cone follows on laterally, at least almost directly, from the sealing surface (Figs. 2-5).

Regarding claim 5, the Reiners reference discloses a surface (29) being located between the pressurizing surface and the supporting surface, opposite to the sealing surface, which is a lateral surface of a truncated cone (e.g. 29).

Regarding claim 7, the Reiners reference discloses the pressurizing surface and the supporting surface being profiled (Figs. 2-5).

Regarding claim 11, the Reiners reference discloses the sealing surface being designed as the surface of a cylinder (33).

Regarding claim 12, the Reiners reference discloses the sealing ring being accommodated in a component (22), in a groove (Figs. 2-5) without undercut, in that the groove displays a supporting flank (e.g. 26) opposite the supporting surface of the sealing ring and a pressure-side flank (e.g. 24) opposite the pressurizing surface of the sealing ring, in that the sealing surface of the sealing ring projects from the receiving component in the radial direction (Figs. 2-5), in that the pressure-side flank and the supporting flank, of the groove are inclined relative to the sealing surface of the sealing ring, each enclosing an angle of less than 90 degrees towards it (Figs. 2-5), and in that a gap (e.g. gap between 24 and 31) is provided, into which a fluid medium can flow, pressing the sealing ring in sealing fashion against the supporting flank of the groove and against a component to be sealed that corresponds to the first component (Col. 3, Lines 38-41).

Regarding claim 13, the Reiners reference discloses a sealing arrangement (Figs. 2-5) with a sealing ring (27) and a component (22) which displays a groove without undercut, in that the groove displays a supporting flank (e.g. 26) opposite the

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supporting surface of the sealing ring and a pressure-side flank (e.g. 24) opposite the pressurizing surface of the sealing ring, in that the sealing surface of the sealing ring projects from the receiving component in the radial direction (Figs. 2-5), in that the pressure-side flank and the supporting flank of the groove are inclined relative to the sealing surface of the sealing ring, each enclosing an angle of less than 90 degrees towards it (Figs. 2-5), and in that a gap (e.g. gap between 24 and 31) is provided, into which a fluid medium can flow, pressing the sealing ring in sealing fashion against the supporting flank of the groove and against a component to be sealed that corresponds to the first component (Col. 3, Lines 38-41) and where at least the area of the sealing surface facing the supporting surface is arranged exactly parallel to the longitudinal axis of the sealing ring (Figs. 2-5).

Regarding claim 14, the Reiners reference discloses the gap extending over the side of the sealing ring opposite the sealing surface of the sealing ring which forms a transitional area between the supporting surface and the pressurizing surface (Figs. 2-5).

Regarding claim 15, the Reiners reference discloses the sealing ring projecting from the groove in the component in the radial direction by less than one-third of its radial thickness (Figs. 2-5).

Regarding claim 16, the Reiners reference discloses the supporting flank of the groove being in full contact with the supporting surface of the sealing ring by pressurizing fluid (Figs. 2-5, Col. 3, Lines 41-45).

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Regarding claim 17, the Reiners reference discloses the gap displaying an essentially constant gap width over its radial extension (Figs. 2-5).

Regarding claim 18, the Reiners reference discloses the groove being rounded (Figs. 2-5).

Regarding claim 19, the Reiners reference discloses a first component (22) which displays the sealing ring accommodated in a circumferential groove (Figs. 2-5), and in that a second component (e.g. 33), which is capable of motion relative to the first component.

Regarding claims 23 and 24, the Reiners reference discloses the sealing ring being located in a groove (Figs. 2-5) of a piston and in that the sealing ring provides a seal against a cylinder guiding piston (Col. 1, Lines 9-11).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reiners.

Regarding claims 3 and 6, the Reiners reference discloses the invention substantially as claimed in claim 1.

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However, the Reiners reference fails to explicitly disclose the angles of the pressurizing surface and the supporting surface and the radial thickness of the sealing ring.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the surfaces at an angle of 30 degrees to 60 degrees and the radial thickness of the sealing ring less than or equal to the axial width of the sealing ring, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

8. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reiners in view of Bingham et al. (US Patent No. 6,305,265).

Regarding claims 8 and 9, the Reiners reference discloses the invention substantially as claimed in claim 1.

However, the Reiners reference fails to explicitly disclose the sealing ring being divided.

The Bingham et al. reference, a seal sealing a reciprocating shaft, discloses the seal being solid (Fig. 4) or the seal being divided (Fig. 5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a break in the seal ring of the Reiners reference in view of the teachings of the Bingham et al. reference to provide a seal that expands radially

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outward without substantially reducing the thickness of the seal member (Col. 3, Lines 17-22).

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reiners in view of Gripe et al. (US Patent No. 3,926,444).

Regarding claim 10, the Reiners reference discloses the invention substantially as claimed in claim 1, including the seal ring being made of resilient material (Col. 2, Lines 68-69).

However, the Reiners reference fails to explicitly disclose the material of the seal ring.

The Gripe et al. reference, a rubber O-ring, discloses that seals should be made of nitrile rubber (Col. 2, lines 51-58).

It would have been obvious at the time the invention was made to provide the seal ring of the Reiners reference with nitrile rubber in view of the teachings of the Gripe et al. reference to provide a material having a desired hardness.

10. Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reiners in view of Wheeler (US Patent No. 4,336,946).

Regarding claims 20-22, the Reiners reference discloses the invention substantially as claimed in claim 13.

However, the Reiners reference fails to explicitly disclose the seal ring arranged for a rotating shaft.

The Wheeler reference, an elastomeric O-ring, discloses using the seal for both a rotating and reciprocating shaft (Col. 1, Lines 11-14).

It would have been obvious at the time the invention was made to provide the seal ring of the Reiners reference for a rotating shaft in view of the teachings of the Wheeler reference to provide a seal that is not materially affected by temperature changes (Reiners, Col. 1, Lines 38-41).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gilbert Y. Lee whose telephone number is 571-272-5894. The examiner can normally be reached on 8:00 - 4:30, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patricia L. Engle can be reached on (571)272-6660. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "Patricia Engle", is positioned above the printed name.

Patricia Engle

SPE

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GL

3/13/06